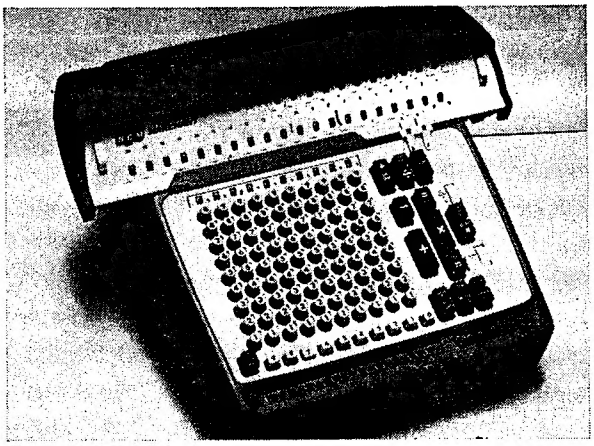
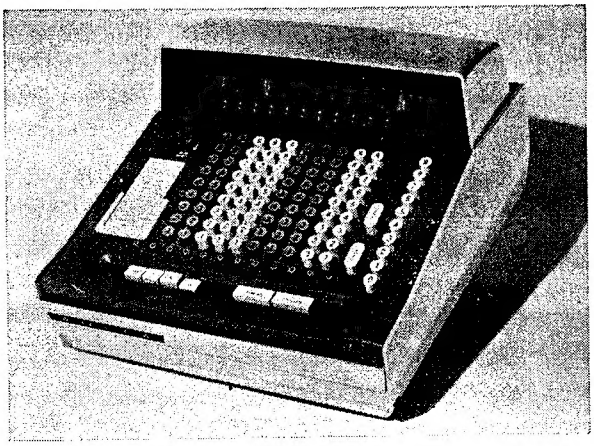
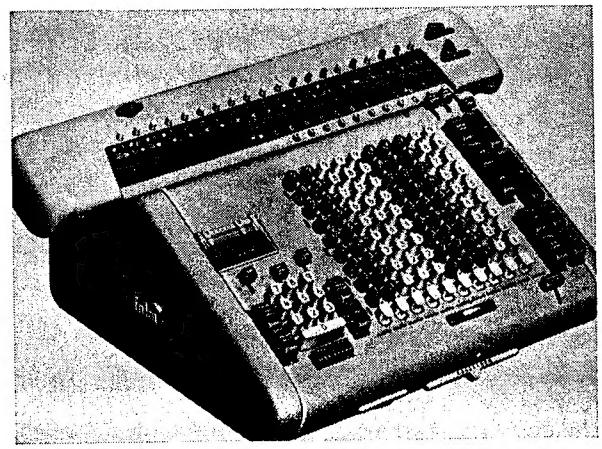
Rotary Calculators



Automatic decimals, single entry squaring and single touch controls are standout features of model SK Marchant Deci-Magic by SCM Corp.



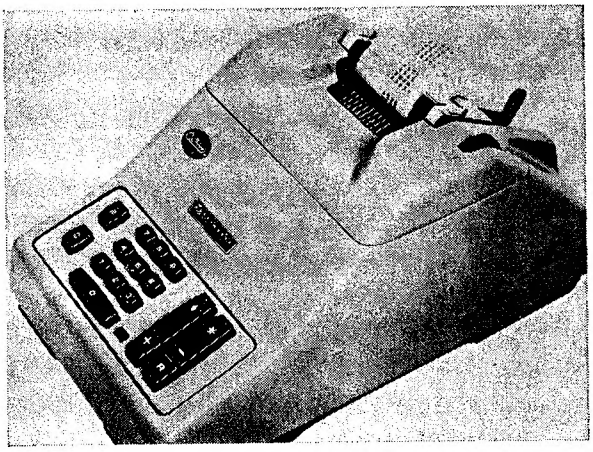
Imported electronic calculator, Anita, from Inter-Continental Trading Corp. Features automatic decimals, complete silence and lighted results.



Multiple features such as a separate multiplier keyboard, automatic division and fraction rounding are offerings in Friden's model SBT. $950.

Adding Machines

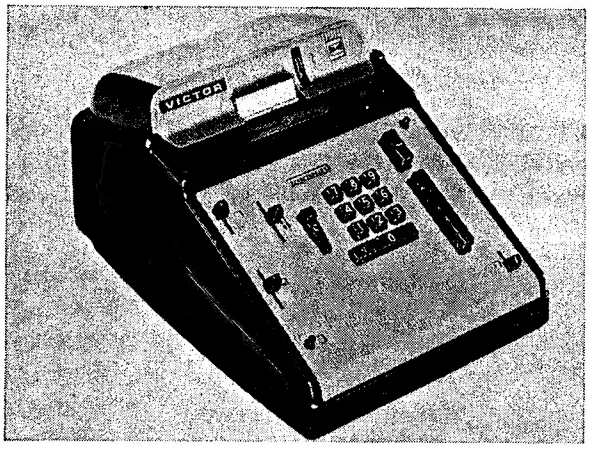
Automatic features such as credit balance with 2-color printing, clear signal and cipher step-over are highlights of the NCR 10-key machine.



Easy changing of tapes and ribbons are features of the Odhner model X-11-C by Facit Inc. Figures may be read without forward feeding of tape roll.

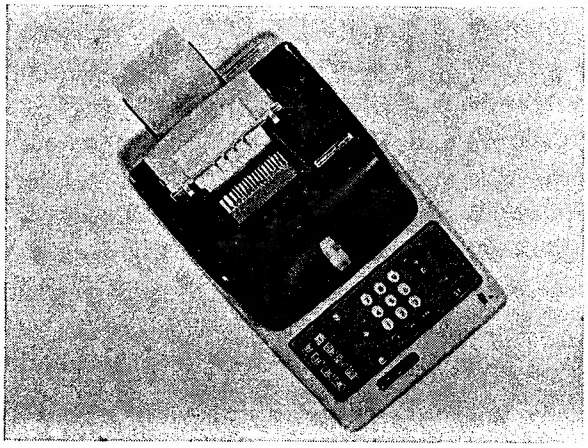
Offered by The General-Gilbert Corp., is this 700 Series unit containing a seven total eight and a nine total nine with direct subtraction.

Printing Calculators



Large capacity "Premier" calculator from Victor lists 13 columns and totals 14. Credit balance and negative entries automatically print in red.

Featuring fully automatic multiplication with individual products and accumulation of products is this Monro-Matic Mach 1.07 from Monroe.



The Divisumma 24 from Underwood-Olivetti performs basic and combined operations automatically, eliminating re-entry of figures. $575.

Adding Up The Facts About Calculators

There is a special machine for each job. Which should you use?

IN LOOKING OVER the desk-top calculator market an administrative manager might, at first, experience some confusion at having to choose from so many models which appear to be so much alike.

However, he need not despair. He can bring some immediate order to his confusion by arming himself with some basic facts about the various differences or similarities between the machines, how they work, and the purpose for which each is best suited.

For his fact examination, one excellent source is an unbiased report on adding machines and calculators prepared by Buyers Laboratory, 305 East 45th Street, New York, which may be extremely useful for anyone faced with having to make a decision regarding the purchase of a machine.

FOUR TYPES

THE FIRST STEP toward a better understanding of the nature of the machines available is to divide them into types. There are four: (1) Ten key adding machines, (2) Printing calculators, (3) Rotary calculators and, (4) Key driven calculators.

Adding machines are designed expressly for addition and subtraction functions. The capacity to perform more complex operations like squaring and extracting roots is not included in the mechanical structure of the machine. Multiplication (done by repeat-addition) and division (done by repeat-subtraction), are, at best, cumbersome procedures and may be done better on one of the other calculators.

Results of adding machine operations are printed on paper tape. Different width tape rolls are available, but if you will be working constantly with large totals or pencil notes are to be made alongside figures on the tape, then the maximum width tape should be used. An important consideration where tape rolls are concerned is in loading them into the machine. This should be an easy operation, and if it is not

Calculators CONTINUED

it should be counted high among drawbacks.

Several manufacturers give high cycling speed as a feature of their product. Cycling speed indicates how fast the meter drives the main shaft, and not the speed at which the machine can be operated. A machine with a speed of about 200 cycles per minute (fast), as compared with a machine rated at about 150 cycles (slow), would at most cut the time required to add 100 numbers by about ten seconds; an operator able to enter about 30 numbers per minute would thus save about three seconds per minute or three minutes per hour of steady operation.

By far the most important determinant of operating speed is not cycling speed, but the skill of the operator. However, many highly skilled operators prefer high cycling speed (along with single-cycle totaling, and a convenient, uncrowded keyboard). For general office use, cycling speed can usually be ignored in the selection of a machine, and it should probably never be an overriding consideration.

Except for the arrangement of the nine digit keys, standardized keyboards do not exist on adding machines. No two machines of different makes have the same layout of control keys (total, subtotal, plus, etc.). For a machine which may be used only occasionally by different people in an office, clear marking of the keys is more important than the layout, though a crowded keyboard may encourage errors.

Almost any operator who uses the machine frequently will quickly become accustomed to the keyboard, and other considerations, such as the presence of particular features not found on all machines, become more important than layout. The highly skilled "touch" operator is likely to have marked preferences, and it is desirable to have her try a few different machines which are otherwise satisfactory to see whether she finds the keyboard —not only the layout, but also the "feel"—suitable.

EIGHT FACTORS

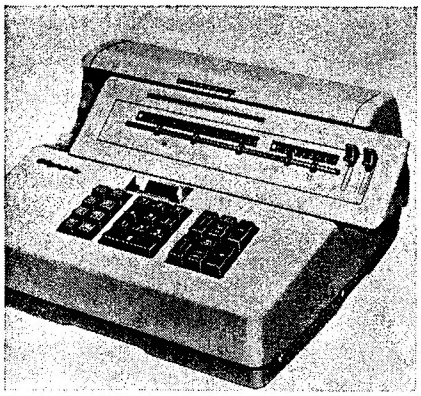
SOME features to consider are: *Column indicator:* Moves across a check window as the keys are depressed to show how many columns the number indexed occupies. For the skilled operator, it is doubtful that this feature is of significant advantage; for the less skilled or casual operator, it can be of real help.

Non-add key: Permits the digits to be used to indicate dates, invoice numbers, account numbers, etc.

Non-print key: For operators who want to record on the tape only the totals and subtotals, and a few machines have this feature; but such keys lend themselves to misue.

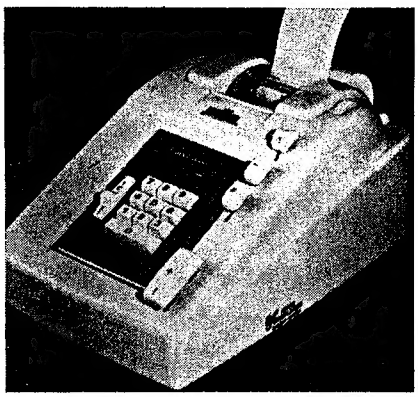
Correction and back-space keys: A few machines have manual correction levers; most have electrified keys. If the wrong digit key is "hit" the number can

Adding machine, J-400, by Burroughs comes in various list and totaling capacities. Minus total.

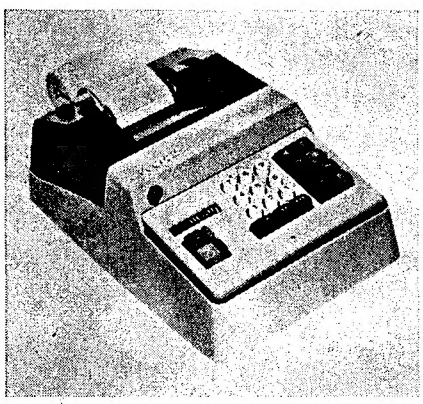


Compact RA16 rotary from Olympia. Constants stored, dividends and divisors auto-tabulated.

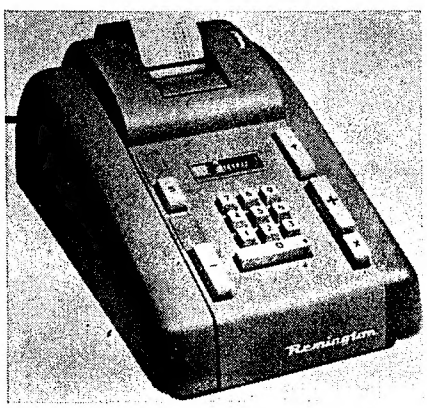
Adding machine by Clary (Rem-Rand) includes electrified Power Controls. Color designed to blend.



Imported adding machine, Adwel. Distributed by Check Writer Corp.



Large capacity adder "Sprint" from Everest. Powerized correction key.



Light touch is featured on this adding machine by Remington Rand.

Calculators CONTINUED

be erased by means of the correction key. Some machines have back-space keys which are convenient to use instead of the correction keys for erasing the last digit or digits indexed rather than the whole number.

Credit balance: Machines with automatic "credit balance" (Cr.) print the true difference as a negative number if the sum subtracted is greater than the amount accumulated in the register. On some machines, a colored flag appears in a check-window as soon as the total registered passes from positive to negative.

Interlocking: Reduces error from simultaneous depression of two digit keys. Advantage for unskilled operator, but may slow a highly skilled operator somewhat.

Key Pressure: While some skilled operators may prefer machines which can be operated with a light touch, for most operators, key pressure (within the range found in electric adding machines) is of minor importance.

Capacity: "10 columns (11 for total)" means that 10-digit numbers (e. g., 28,699,123.58) are the largest that can be entered on the keyboard, and that an additional column is available for totals. A few machines will list 12 numbers and total 13.

A printing calculator is essentially an adding machine which automatically multiplies and divides, and (like an adding machine) prints both the numbers entered and the results of the calculations on a paper tape.

They are often used to perform a variety of interrelated operations in which the result of one operation becomes a factor in the next operation, or in which the results of a succession of operations are added together. Such operations can, of course, be performed on any machine if the intermediate results are re-entered on the key board.

Many of these machines are able to carry a credit balance, handle fractions, do negative multiplication, and automatically square figures. They can give cumulative subtotals and a final total in adding the results of a series of multiplications. Since a variety of special operations are made up of these basic elements, it should be possible to determine whether a machine meets any special requirement.

NON-PRINT

ROTARY calculators do not list or print numbers. Instead, they show the results of calculations in rows of rotating number dials. They may be used to do ordinary addition and subtraction, but are more efficiently disposed when directed to high speed multiplication and division problems for which they have been designed.

Rotaries lack an important advantage of printing calculators —the results are not printed on

a tape, but must be immediately copied from dials. This is a potential source of error as well as an inconvenience. And if accuracy must be checked later, calculations must be repeated. These are important disadvantages, and the buyer should, therefore, be sure before purchasing a rotary machine that its special advantages are needed.

On the other hand, most rotary calculators offer, to a varying degree, these advantages over most printing calculators:

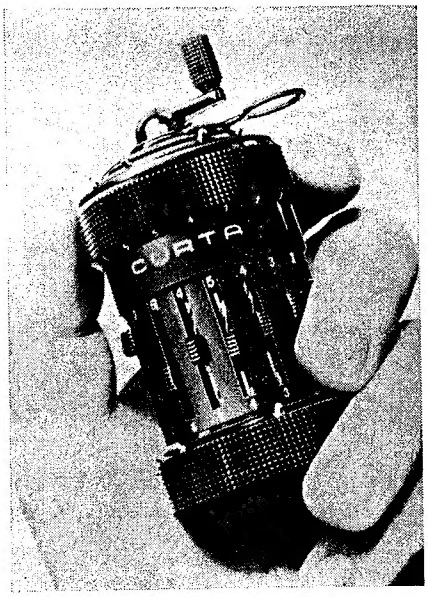
1. Greater flexibility in the handling of a series of interrelated operations without re-entry of intermediate results.
2. Greater column capacity for multiplication and division problems.
3. Greater speed, especially in division.

The advantages offered by rotaries are most obvious in the handling of complex interrelated problems, and in multiplication and division calculations involving large numbers.

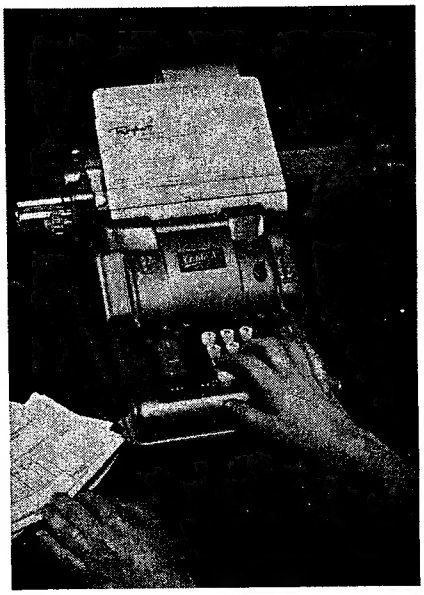
It cannot be too strongly emphasized that the ability of some of the rotary calculators to handle complex interrelated calculations will be wasted if the operator does not use the machine sufficiently to become highly skilled. In such a calculation, after the digit keys have been depressed to enter a number in the keyboard, several different function keys and levers may have to be depressed or moved in a particular order before the next number is entered. An operator who has not fully mastered the machine will not only waste a great deal of time in performing the calculations, but she is almost certain to make errors.

SPEED MACHINE

KEY driven calculators do not list or print numbers on paper tape. The results, like results of rotaries, are shown on visual number dials. Key driven machines are of a full keyboard design. They are particularly suited to high speed addition and



Hand operated, hand sized, pocket calculator by Curta performs all arithmetical functions accurately including squares and roots. $165.



Shuttle carriage adding machine by Addo-X for preparing statements and bills. Available in six models with different size carriages.

Calculators CONTINUED

subtraction because the operator can enter all the digits of the number to be processed at the same time. It requires, then, less time for the operator to instruct the machine. Given extended operations ever a considerable length of time, substantial time savings thus become evident to the operator.

The instant the keys are depressed, the results show up on the dials. Multiplication and division are performed by repeated addition and subtraction.

SPECIAL AREAS

PAST experience, or the fact that some requirement is met only by a single type of machine, may make the choice easy. If there are doubts, however, the following suggestions may be helpful:

If most of the work load is addition and subtraction, and if a machine is not needed for division and only infrequently for multiplication, an adding machine should be satisfactory.

If multiplication problems are frequent, however, a multiplier is a better choice (or a rotary calculater if its greater capacity —multiplicand, 10 columns; multiplier, 10; product, 20 or 21 —is needed).

For divisions: These often require prolonged cycling in a printing calculator, and if division is a large part of the workload, the higher speed of a rotary calculator may make it preferable. In division, as in multiplication, if the numbers to be handled contain many digits, the low capacity of some of the machines may offer problems. For the capacity of the different printing calculators, check with the manufacturer.

The capacity of the rotary calculators is generally 10 columns for the dividend, 10 for the divisor, and 9 or 10 for the quotient.

For general use: A major consideration in the choice between a printing and a rotary calculator is the importance to the user of having the calculations recorded on a tape.

With a rotary calculator, the results must be copied from the dials. This is true also with key driven machines. If a tape can be used directly without recopying, time is saved and a possible source of error eliminated. Assuming the machine is functioning properly, with a tape it is necessary to check only the cor-

Calculators CONTINUED

rect entry of the figures, and checking can be done at any time—a result on a rotary calculater can be checked only by repeating the calculation.

For special operations involving a series of interrelated numbers, the most flexible of the printing calculators can do almost anything a rotary calculator can do. But, especially in such operations, the greater capacity of the rotary machine can be an important advantage.

Because all of the machines mentioned are electrically powered some maintenance is required, but the frequency of it is low. All manufacturers offer service contracts, and prices vary from manufacturer to manufacturer.

Periodic inspection and cleaning, either annually or at more frequent intervals is recommended. A rotary calculator, like a printing calculator, key driven calculator or adding machine, can give erroneous results if not properly maintained, or when parts wear or get out of adjustment.

A list of names and addresses of desk top calculating devices is available by circling Number 101 *on the Reader Inquiry Card.*

Hand machines are naturally cheaper than electrically powered machines. They are also less prone to the occasional mechanical faults. Because they do not depend on any required electrical outlet they are obviously more portable. However, they are not practical considerations where high speed is a factor.

Where it is important for a large number of people to have a machine near at hand for immediate use, but where the volumn of work is insufficient to keep each machine occupied for more than a small proportion of the time, a hand operated machine is usually sufficient. ■